

General

Guideline Title

A.S.P.E.N. clinical guidelines: nutrition support of neonatal patients at risk for necrotizing enterocolitis.

Bibliographic Source(s)

Fallon EM, Nehra D, Potemkin AK, Gura KM, Simpser E, Compher C, American Society for Parenteral and Enteral Nutrition (A.S.P.E.N.) Board of Directors, Puder M. A.S.P.E.N. clinical guidelines: nutrition support of neonatal patients at risk for necrotizing enterocolitis. JPEN J Parenter Enteral Nutr. 2012 Sep;36(5):506-23. [50 references] [PubMed](#)

Guideline Status

This is the current release of the guideline.

Recommendations

Major Recommendations

Definitions for the grades of recommendations (Strong, Weak, Further research needed) and level of evidence (Strong, Moderate, Low, Very Low) are provided at the end of the "Major Recommendations" field.

When and How Should Feeds Be Started in Infants at High Risk for Necrotizing Enterocolitis (NEC)?

The authors suggest that minimal enteral nutrition should be initiated within the first 2 days of life and advanced by 30 mL/kg/d in infants $\geq 1,000$ g. (Weak)

Does the Provision of Mother's Milk Reduce the Risk of Developing NEC Relative to Bovine-Based Products or Formula?

The authors suggest the exclusive use of mother's milk rather than bovine-based products or formula in infants at risk for NEC. (Weak)

Do Probiotics Reduce the Risk of Developing NEC?

There are insufficient data to recommend the use of probiotics in infants at risk for NEC. (Further research needed)

Do Certain Nutrients Either Prevent or Predispose to the Development of NEC?

The authors do not recommend glutamine supplementation for infants at risk for NEC. (Strong)

There is insufficient evidence at this time to recommend arginine and/or long-chain polyunsaturated fatty acid supplementation for infants at risk for NEC. (Further research needed)

When Should Feeds be Reintroduced to Infants with NEC?

There are insufficient data to make a recommendation regarding time to reintroduce feedings to infants after NEC. (Further research needed)

Definitions:

Level of Evidence

High: Further research is very unlikely to change the authors' confidence in the estimate of effect

Moderate: Further research is likely to have an important impact on the authors' confidence in the estimate of effect and may change the estimate

Low: Further research is very likely to have an important impact on the authors' confidence in the estimate of effect and is likely to change the estimate

Very Low: Any estimate of effect is very uncertain

Grade of Recommendation

Strong: Net benefits outweigh harms

Weak: Tradeoffs for patient are important

Further research needed: Uncertain tradeoffs

Clinical Algorithm(s)

None provided

Scope

Disease/Condition(s)

Necrotizing enterocolitis (NEC)

Guideline Category

Management

Prevention

Risk Assessment

Clinical Specialty

Gastroenterology

Nursing

Nutrition

Pediatrics

Intended Users

Advanced Practice Nurses

Allied Health Personnel

Dietitians

Hospitals

Nurses

Physician Assistants

Physicians

Guideline Objective(s)

To address enteral nutrition practices, probiotic administration, and nutrient supplementation in patients at risk for and/or diagnosed with necrotizing enterocolitis (NEC)

Target Population

Neonates

Interventions and Practices Considered

1. Enteral nutrition
2. Mother's milk

Note: Probiotics, glutamine, arginine, and long-chain polyunsaturated fatty acid supplementation were considered but not recommended.

Major Outcomes Considered

- Incidence of necrotizing enterocolitis (NEC)
- Time to full enteral nutrition
- Feeding tolerance
- Mortality
- Other secondary outcomes such as apnea, duration of hospital stay, intravenous (IV) fluid requirements, weight gain/growth, hemorrhage, lung disease, retinopathy, and rate of nosocomial sepsis

Methodology

Methods Used to Collect/Select the Evidence

Searches of Electronic Databases

Description of Methods Used to Collect/Select the Evidence

A rigorous literature search is undertaken to locate clinical outcomes associated with practice decisions in the population of interest.

For the current Clinical Guideline, the search term *necrotizing enterocolitis* was used in PubMed with inclusion criteria including infants (birth to 23 months); humans; clinical trial; randomized controlled trial; case reports; clinical trial: phase I, phase II, phase III, phase IV; comparative study; controlled clinical trial; guideline; journal article; multicenter study; English language; and published within the last 10 years. The search was conducted on April 21, 2011. For questions 1 and 3, an additional limitation of randomized controlled trial was implemented due to the plethora of literature on these topics. For questions 2, 4, and 5, pertinent literature within the past 10 years, without restriction to evidence type, was included.

Number of Source Documents

A total of 1,335 abstracts were reviewed, of which 24 papers met the inclusion criteria of the Clinical Guidelines and were included.

Methods Used to Assess the Quality and Strength of the Evidence

Weighting According to a Rating Scheme (Scheme Given)

Rating Scheme for the Strength of the Evidence

Level of Evidence

High: Further research is very unlikely to change the authors' confidence in the estimate of effect

Moderate: Further research is likely to have an important impact on the authors' confidence in the estimate of effect and may change the estimate

Low: Further research is very likely to have an important impact on the authors' confidence in the estimate of effect and is likely to change the estimate

Very Low: Any estimate of effect is very uncertain

Methods Used to Analyze the Evidence

Systematic Review with Evidence Tables

Description of the Methods Used to Analyze the Evidence

Each pertinent paper is appraised for evidence quality according to research quality (randomization, blinding, attrition, sample size, and risk of bias for clinical trials and prospective vs retrospective observation, sample size, and potential bias for observational studies) and placed into an evidence table. A second table is used to provide an overview of the strength of the available evidence according to the clinical outcomes, in order to support a consensus decision regarding the guideline recommendation. If the evidence quality is high, it is unlikely that further research will change the authors confidence in the estimate of effect. With moderate grade evidence, further research is likely to modify the confidence in the effect estimate and may change the estimate. With low grade evidence, further research is very likely to change the estimate, and with very low evidence quality, the estimate of the effect is very uncertain.

Methods Used to Formulate the Recommendations

Expert Consensus

Description of Methods Used to Formulate the Recommendations

American Society for Parenteral and Enteral Nutrition (A.S.P.E.N.) has adopted concepts of the Grading of Recommendations, Assessment, Development and Evaluation (GRADE) working group (<http://www.gradeworkinggroup.org>) for development of its clinical guidelines. The GRADE working group combined the efforts of evidence analysis methodologists and clinical guidelines developers from diverse backgrounds and health organizations to develop an evaluation system that would provide a transparent process for evaluating the best available evidence and integration of the evidence with clinical knowledge and consideration of patient priorities. These procedures provide added transparency by developing separate grades for the body of evidence and for the recommendation. The procedures were adopted from the GRADE process for use with A.S.P.E.N. Clinical Guidelines with consideration of the levels of review (by internal and external content reviewers, by the A.S.P.E.N. Board of Directors).

A clinical recommendation is then developed by consensus of the Clinical Guidelines authors, based on the best available evidence. The risks and benefits to the patient are weighed in light of the available evidence. Conditional language is used for weak recommendations.

Rating Scheme for the Strength of the Recommendations

Grade of Recommendation

Strong: Net benefits outweigh harms

Weak: Tradeoffs for patient are important

Further research needed: Uncertain tradeoffs

Cost Analysis

A cost analysis was not performed and published cost analyses were not reviewed.

Method of Guideline Validation

External Peer Review

Internal Peer Review

Description of Method of Guideline Validation

The procedures were adopted from the Grading of Recommendations Assessment, Development and Evaluation (GRADE) process for use with American Society for Parenteral and Enteral Nutrition (A.S.P.E.N.) Clinical Guidelines with consideration of the levels of review (by internal and external content reviewers, by the A.S.P.E.N. Board of Directors).

Evidence Supporting the Recommendations

Type of Evidence Supporting the Recommendations

The type of supporting evidence ranges from prospective randomized trials to expert opinion/consensus.

Benefits/Harms of Implementing the Guideline Recommendations

Potential Benefits

Improved nutrition support for the prevention and management of necrotizing enterocolitis (NEC) in neonates

Potential Harms

Not stated

Qualifying Statements

Qualifying Statements

American Society for Parenteral and Enteral Nutrition (A.S.P.E.N.) Clinical Guidelines are based upon general conclusions of health professionals who, in developing such guidelines, have balanced potential benefits to be derived from a particular mode of medical therapy against certain risks

inherent with such therapy. However, the professional judgment of the attending health professional is the primary component of quality medical care. Because guidelines cannot account for every variation in circumstances, the practitioner must always exercise professional judgment in their application. These Clinical Guidelines are intended to supplement, but not replace, professional training and judgment.

Implementation of the Guideline

Description of Implementation Strategy

An implementation strategy was not provided.

Implementation Tools

Resources

For information about availability, see the *Availability of Companion Documents* and *Patient Resources* fields below.

Institute of Medicine (IOM) National Healthcare Quality Report Categories

IOM Care Need

Getting Better

Staying Healthy

IOM Domain

Effectiveness

Timeliness

Identifying Information and Availability

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Adaptation

Not applicable: The guideline was not adapted from another source.

Date Released

2012 Sept

Guideline Developer(s)

American Society for Parenteral and Enteral Nutrition - Professional Association

Source(s) of Funding

American Society for Parenteral and Enteral Nutrition (A.S.P.E.N.)

Guideline Committee

Not stated

Composition of Group That Authored the Guideline

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Financial Disclosures/Conflicts of Interest

Financial disclosure: none declared

Guideline Status

This is the current release of the guideline.

Guideline Availability

Electronic copies: Available from the [Journal of Parenteral and Enteral Nutrition Web site](#) .

Availability of Companion Documents

The following is available:

- Clinical guidelines for the use of parenteral and enteral nutrition in adult and pediatric patients: applying the GRADE system to development of A.S.P.E.N. clinical guidelines. American Society for Parenteral and Enteral Nutrition (A.S.P.E.N.). 2012 Jan. 5 p. Electronic copies: Available from the [Journal of Parenteral and Enteral Nutrition Web site](#) .

Patient Resources

None available

NGC Status

This NGC summary was completed by ECRI Institute on December 21, 2012. The information was verified by the guideline developer on January 21, 2013.

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